

NOSKOVA, A.A.

Oligochaetes of the Posol'sk shoal of Lake Baikal. Izv.SO AN  
SSSR no.8, Ser. biol.-med. nauk no.2:118-121 '63.

(MIRA 16:11)

1. Limnologicheskiy institut Sibirskogo otdeleniya AN SSSR, s.  
Listvennichnoye Irkutskoy oblasti.

NOSKOVA, A.A.

Species and distribution of oligochaetes in the Selenga region of Lake Baikal. Izv. SO AN SSSR no.12. Ser. biol.-med. nauk no.3: 117-125 '63. (MIRA 17:4)

1. Limnologicheskiy institut Sibirskogo otdeleniya AN SSSR, selo Listvenichnoye Irkutskoy oblasti.

SHMERELSON, M.B.; CHENENKOVA, V.N.; KAROV, V.V.; NOSENKOVA, A.S.

Changes in the indicators of the function of external respiration  
at a late date following mitral commissurotomy. Ush. trudy ONI  
no.19:63-66 '65. (MIRA 18:8)

1. Iz kliniki gosital'noy khirurgii i Fiziologicheskogo otdela  
TSentral'noy nauchno-issledovatel'skoy laboratorii Gor'kovskogo  
gosudarstvennogo meditsinskogo instituta imeni S.M.Kirova.

ACC NR: A-028121

SOURCE CODE: UR/0372/66/000/005/G036/G036

AUTHOR: Skugarev, V. V.; Noskova, A. P.; Kislenko, S. A.

TITLE: Computer design of linear dc circuits

SOURCE: Ref. zh. Kibernetika, Abs. 5G243

REF SOURCE: Sb. Metody matem. modelir. i teoriya elektr. tsepey. Vyp. 6. Kiyev, 1965  
38-62

TOPIC TAGS: electronic circuit, circuit design, computer technique, computer programming

ABSTRACT: The efficiency of loop current and node voltage circuit analysis methods is compared. In most cases the permissible amount of data on circuit branches that can be stored in an immediate-access memory unit is about the same for both methods; however, when the permissible amount of data on circuit nodes is considered the loop current method seems to be more practical. In the case in which the loop current method is used definite difficulties are encountered in finding independent loops for the analysis. A technique is proposed for storing circuit data by which circuits containing up to 63 nodes can be analyzed on a 3-address machine with a 4096-cell immediate-access storage unit. A specific program for the search of independent loops has been constructed for machines with a 36-unit address of operative memory cells. [Translation of abstract] 9 illustrations and bibliography of 4 titles. G. Ya.

SUB CODE: 09

Card 1/1

UDC: 62-506:681.142.62

The critical period in flux nutrition with nitrogen, phosphorus and potassium.—A. V. Noshov, *Commission of Socialist Agric.* (U.S.S.R.) No. 9, 27-30(1938).—The crit. period for K nutrition for flax is from the stage when 12 to 16 pair of leaves are formed up to heading out. Most of the K is absorbed during this period. K deficiency at the start retards growth, but the condition can be corrected by later addition of K. Lack of K during the period of heading out is injurious to the plant. The same.

K intake occurs during this period and at time of flowering  
P is abundantly consumed from the start. J. S. Joffe

Noskova, A. V.

VINOGRADSKIY, B. M.; DAVYDOV, G. K.; NOSKOVA, A. V.; STEFANISHIN, S. Ye.

Foliar nutrition of potatoes. Trudy VNIISP no. 4:115-121 '54.  
(MLRA 8:12)

(Potatoes) (Fertilizers and manures)

BRYUSHKOVA, F.I.; NOSKOVA, A.V.; CHUBOVA, A.V.

Effectiveness of Bordeaux mixture for the control of Phytophthora  
in potatoes. Trudy VNIISP no.4:147-152 '54. (MIRA 8:12)  
(Potatoes--Diseases and pests) (Phytophthora) (Bordeaux mixture)

KORZHUYEV, D.A.; MOSKOVA, A.V.; USPENSKIY, Ye.M.; MOZOL'KOVA, D.A.

Long storage of potatoes using chemical compounds. Trudy VNIISP  
no. 4:160-179 '54. (MLRA 8:12)  
(Potatoes--Storage) (Growth inhibiting substances)



PRONIN, V., kand.biol.nauk; NOSKOVA, F., studentka

Biological investigation of the growth and development of annual  
lupine. Nauka i pered. op. v sel'khoz. 8 no.8:48-49 Ag '58.  
(MIRA 11:10)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.  
(Lupine)

1ST AND 2ND EDITIONS PROCESSES AND PROPERTIES INDEX		3RD AND 4TH EDITION
<div style="float: left; width: 15%;">           MOSKOV, G.I.   <span style="font-size: 2em; font-family: cursive;">Ca</span> </div> <div style="float: right; width: 10%; text-align: right;"> <span style="font-size: 1.5em;">116</span> </div> <div style="clear: both;"></div> <p style="text-align: center; margin-top: 20px;"> <b>The effect of low temperature on the development of microorganisms. III. The effect of low temperature on the growth of bacteria and yeasts.</b> F. M. Chistyakov and G. I. Noshkov. <i>Microbiology</i> (U. S. S. R.) 7, 55-67 (1938); <i>Chem. Zentr.</i> 1939, II, 130.—The lowest temp. for the growth of yeast is about -8°. <i>Flavobacterium sulfureum</i> and <i>Bacterium lactis viscosum</i> are still able to grow at this temp. The temp. min. for <i>Bacterium fluorescens</i>, <i>Planobacterium flavescens</i>, <i>Planobacterium ochraceum</i> and <i>Micrococcus sp.</i> is -6°; for <i>Bacterium putidum</i> and <i>Achromobacter sp.</i> it is -2°. Spore-forming forms, in general, showed greater resistance to cold. The addition of NaCl to the nutrient media reduced the resistance.  W. A. Moore </p>		

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION		
FROM SYNOBOL	FROM HOWARD	FROM BOWLING
LONGER OF	LONGER WITH ONE END	TELEPHONE
SELECT ONE ONE TWO		

NOSKOVA, G. L. CA		11C	
<p>The causes of death of yeast on freezing. G. L. Noskova. <i>Mikrobiologiya</i> 16, 449-50(1947).--The principal reason for destruction of yeast cells on freezing at <math>-11^{\circ}</math> is the destructive action on the protoplasmic proteins of the cells of high concn. of solutes within the cells and in the surrounding medium, formed as a result of freezing out of water. At <math>-30^{\circ}</math> the death of the cells takes place only in the first stages of freezing when mech. action of ice is possible; in the succeeding stages (storage in the cold) the death rate decreases. G. M. Korolapoff</p>			
ASD-5.6A METALLURGICAL LITERATURE CLASSIFICATION			
REGIONAL SYMBOL			
SEARCHED INDEXED SERIALIZED FILED			
MAR 1948			

NOSEKOVA, G.<sup>L.</sup> kandidat biologicheskikh nauk; ENTSEV, V., kandidat biologicheskikh nauk.

Preparation for the prevention of mold on refrigerators. Enol.tekh. 30  
no.2:25-29 Ap-Je '53. (MLRA 6:7)

1. VNIKhI.

(Molds (Botany))

USSR/Microbiology - General Microbiology. Variability  
and Heredity.

F

Abs Jour : Ref Zhur Biol., No 22, 1958, 99313

Author : Chistyakov, F.M., Noskova, G.L.

Inst : -

Title : The Adaptation of Microorganisms to Low Temperatures.

Orig Pub : Dokl. ot SSSR 9-mu Mezhdunar. kongressu kholoda, M.,  
Gostorgizdat, 1957, 68-73

Abstract : Several different species of bacteria and mold fungi  
were repeatedly reseeded in the course of 2 years at  
0-8°. As a result, "cold" adapted strains (AS) were ob-  
tained. As a control the same cultures were taken, grown  
at 20°. In AS the initial stationary phase of develop-  
ment at -2° is considerably shorter, but the continuance  
of generation in the logarithmic phase at -2° is only a  
little shorter than in the adapted strains. The cells  
of AS die off in a smaller quantity upon chilling.

Card 1/2

- 25 -

USSR/Microbiology - General Microbiology. Variability  
and Heredity.

F

APPROVED FOR RELEASE: Tuesday, August 01, 2000

CIA-RDP86-00513R001

In some species adaptation is also expressed in slime  
formation. At low temperatures, AS of mold fungi grow  
considerably faster than unadapted ones. -- M.A.  
Gruzman

Card 2/2

NOSKOVA, G. (MISS) and PECK, G. J.

Noskovay G. (Miss) and Peck, G. J. (Scientific Research Institute of the Refrigerating Industry of the USSR, Moscow): "The Temperature Dependence of the Multiplication and Biochemical Activity of Psychrophilic Bacteria in the Temperature Range of Cooled Storage--I. *Pseudomonas fluorescens* and *achromobacter* Sp. on ground meat"  
/English - 10 pages/

report presented at the International Inst. of Refrigeration (IIR), Annual Meetings of Commissions 3,4, and 5, Moscow, 3-6 Sep 1958.

NOSKOVA, G.; PEK, G., MOISEYeva, Ye.

Effect of low temperatures on the reproduction and biochemical  
activity of *Achromobacter* sp. Khol.tekh. 35 no.5:44-48 5-0  
'58. (MIRA 11:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy  
promyshlennosti.  
(*Achromobacter*) (Food--Storage)





PEK, G. J., NOSKOVA, G. L.

"Bacterial Index of the State of Freshness of Cooled Products."

Report submitted for the 10th Intl. Refrigeration Congress, Copenhagen,  
19 August - 2 September 1959.

KOSKOVA, Glafira Leonidovna; PEK, Georgiy Yul'yevich; ISKOVA, A.K.,  
red.; BABICHEVA, V.V., tekhn.red.

[Microbial food spoilage of perishable food products in storage;  
a scientific report] Mikrobal'naya porcha skoreportlashchikhaia  
pishchevykh produktov pri khraneni; nauchnoe soobshchenie. Moskva,  
Gos.izd-vo tog.lit-ry, 1959. 62 p. (MIRA 13:4)  
(Food spoilage)

NOSKOVA, Glafira Leonidovna; PEK, Georgiy Yul'yevich: Prinimala uchastiye  
MOISEYEVA, Ye.L. MEDVEDEVA, N.P., retsenzent; APT, F.S.,  
retsenzent; TSIPERSON, A.L., red.; BABICHEVA, V.V., tekhn.red.

[Microbiology of the cold storage of food products] Mikrobiologiya  
kholodil'nogo khraneniya pishchevykh produktov. Moskva, Gosizd-vo  
torg.lit-ry, 1960. 119 p. (MIRA 14:1)  
(Food--Storage) (Microbiology)

APT, F.S.; KOSTROVA, Ye.I.; MATROZOVA, R.G.; NEKHOTENOVA, T.I.; ROGACHEVA,  
A.I.; NOSKOVA, G.L., kand. biol. nauk, retsenzent; SYCHEVA, M.Ye.,  
mikrobiolog, retsenzent; NAMESTNIKOV, A.F., kand. tekhn. nauk,  
spets. red.; MURASHEVA, O.I., red.; SOKOLOVA, I.A., tekhn. red.

[Microbiological control in the canned food, concentrated food and  
dried vegetables industry] Mikrobiologicheskii kontrol' konservnogo,  
pishchekontsentratsionnogo i ovoshchesushil'nogo proizvodstva. Moskva,  
Pishchepromizdat, 1961. 114 p. (MIRA 14:11)  
(FOOD—MICROBIOLOGY)

NOSKOVA, G.L.; PEK, G.Yu.

Bacteriological method of determining the quality of raw  
materials of animal origin. Kons.i ov.prom. 17 no.10:32-34  
O '62. (MIRA 15:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy kholodil'nyy institut.  
(Sanitary microbiology)  
(Canning industry—Quality control)

NESKOVA, Glafira Leonidovna; PEK, Georgiy Yul'yevich, GEYMBERG, V.G.,  
kand. biol. nauk, nauchnyy red.; KAPLUN, M.S., red.;  
BRODSKIY, M.P., tekhn. red.

[Effect of vacuum on the microflora of refrigerated food  
products] Vliianie vakuuma na mikrofloru okhlazhdennykh pi-  
shchevykh produktov; nauchnye soobshchenia. Moskva, Gos-  
torgizdat, 1963. 37 p. (MIRA 16:7)  
(Refrigeration and refrigerating machines)

BOBKOV, V.A.; DANILOV, R.L.; DRACHEVA, T.A.; NOSKOVA, G.L.;  
OLENEV, Yu.A.; KHOLOPOVA, A.A.; SHELAPUTIN, V.I.; RIUTOV, D.G., red.;  
BYKOVA, M.G., red.; OKOLELOVA, Z.P., tekhn.red.

[Use of refrigeration for the preservation of agricultural  
products] Primenenie kholoda dlia khraneniia sel'skokho-  
ziaistvennykh produktov. Moskva, Sel'khozizdat, 1963. 53 p.  
(MIRA 16:12)

1. Nauchnyye sotrudniki Vsesoyuznogo nauchno-issledovatel'-  
skogo instituta kholodil'noy promyshlennosti (for all except  
Bykova, Okolelova). (Farm produce—Storage)

PISKAREV, A.I.; KHOLOPOVA, A.A.; SHELAPUTIN, V.I.; NOSKOVA, G.L.;  
ALEKSEYEV, P.A.; DRACHEVA, T.A.; OLENEV, Yu.A.; PAVLOVA,  
I.A.; SELIVANOV, V.A.; VINOGRADOV, S.V.; MIROLYUBOV, P.A.;  
ROVENSKIY, A.I.; SKOROKHODOV, A.A.; RYUTOV, D.G.; kand.  
tekhn. nauk, red.; CHICHKOV, N.V., red.; MEDRISH, D.M.,  
tekhn. red.

[Manual on the operation of cold storage warehouses] Spravochnik po ekspluatatsii kholodil'nykh skladov. Moskva, Gostorgizdat, 1963. 175 p. (MIRA 16:7)

1. Sotrudniki Vsesoyuznogo nauchno-issledovatel'skogo instituta kholodil'noy promyshlennosti (for Piskarev, Kholopova, Shelaputin, Noskova, Alekseyev, Dracheva, Olenov, Pavlova).
  2. Rosmyasorybtorg Ministerstva torglovli RSFSR (for Selivanov, Vinogradov, Mirolyubov, Rovenskiy).
  3. Gosudarstvennyy planovoy komitet Soveta Ministrov SSSR (for Skorokhodov).
- (Cold storage warehouses)



NOSKOVA, G. L . and PEK, G. YU.

Combined Effect of Cold and Vacuum on the Microflora of Products during storage.

Report submitted for the 11th Intl. Congress of Refrigeration, Munich, Germany, 27 Aug - 4 Sept 1963.

MILYUTINA, Ye.I.; NOSKOVA, G.N.

Analysis of visits to medical institutions by workers of industrial enterprises. Zdrav. Ros. Feder. 4 no. 4:24-26 Ap '60.  
(MIRA 13:10)

1. Iz Sverdlovskogo gorzdravotdela.  
(SVERDLOVSK—DISEASES—REPORTING)

MOSKOVA, G.P.

Fixing the termination time of artificial pneumothorax applied in conjunction with antibacterial preparations. Sov. med. 25 no.3:134-138 Mr '61. (MIRA 14:3)

1. Iz terapevticheskogo otdeleniya (zav. - kand.med.nauk I.S.Sergeyev) Moskovskogo nauchno-issledovatel'skogo instituta tuberkuleza (dir. V.F.Chernyshev) Ministerstva zdravookhraneniya RSFSR.  
(PNEUMOTHORAX)

ASEYEV, D. D., prof.; NOSKOVA, G. P. (Moskva)

General data on the effectiveness of artificial pneumothorax  
applied in combination with antibacterial preparations. Probl.  
tub. 40 no.5:16-21 '62. (MIRA 15:7)

(PNEUMOTHORAX) (TUBERCULOSIS)

S/055/63/000/001/005/008  
D251/D308

AUTHORS: Kishkin, B. F. and Noskova, I. G.

TITLE: On the strength of glass-cloth laminate after heat-treatment

PERIODICAL: Moscow. Universitet. Vestnik. Seriya I. Matematika, Mekhanika, no. 1, 1963, 46-47

TEXT: A sheet of glass-cloth laminate KACT-B (KAST-V) was tested, using specimens of size 200 x 30 x 6 mm. The specimens were heated to the required temperature (controlled automatically with precision  $\pm 2^{\circ}\text{C}$ ), and allowed to cool for 24 hours. The temperatures attained varied from  $85^{\circ}$  to  $180^{\circ}\text{C}$ . Results showed that the thermal working increased the values of the breaking load and the strength limit and that these new values did not change in the course of three months. The optimum values were obtained with heating to  $140^{\circ}\text{C}$ . There are 1 figure and 1 table.

Card 1/2

On the strength of ...

S/055/63/000/001/005/008  
D251/D308

ASSOCIATION: Kafedra teorii uprogosti (Department of the Theory  
of Elasticity)

SUBMITTED: January 6, 1962

Card 2/2

NOSKOVA, L. I.

KROTOVA, V.A.; NOSKOVA, L.I.

Method of treating agar with a hydrochloric acid solution. Izv. Irk.  
gos. protivochum. inst. 12:289-294 '54. (MIRA 10:12)  
(AGAR) (HYDROCHLORIC ACID)

*NOSKOVA, L.I.*

TIMOFEEVA, L.A.; NOSKOVA, L.I.

Quality of culture media. Tez.i dokl.konf.Irk.gos.nauch.-issl.  
protivochn.inst. no.1:40-41 '55. (MIRA 11:3)  
(BACTERIOLOGY--CULTURES AND CULTURE MEDIA)



*NOSKOVA, L.I.*  
ANTSIFEROV, M.I.; NOSKOVA, L.I.

The effect of blood and its components on the growth of the tularemia  
microbe. Tsz.i dokl.konf.Irk.gos.nauchal-issl.protivochnn. inst.  
no.2:3-5 '57. (MIRA 11:3)

(BLOOD) (PASTEURELLA TULARENSIS)

TIMOFEEVA, L.A.; MOSKOVA, L.I.

Quality of culture media. Izv. Irk. gos. nauch.-issl. protivochun.  
inst. 14:36-45 '57, (MIRA 13:7)  
(BACTERIOLOGY--CULTURES AND CULTURE MEDIA) (PLAGUE)

ANTSIFEROV, M.I.; NOSKOVA, L.I.

Influence of a concentration of amino acid in the Ukhalev-Mikhalev medium on the growth of the tularemia microbe. Izv. Irk.gos.nauch.-issl.prirodovedch.inst. 18:51-54 '58. (MIRA 13:7)

(PASTURELLA TULARENSIS) (AMINO ACIDS)  
(BACTERIOLOGY--CULTURES AND CULTURE MEDIA)

NOSKOVA, L.I.; TROFIMENKO, N.Z.; MIKHNO, V.S.

Meat-acid hydrolysate for growing cholera and plague microbes.  
Izv.Irk.gos.nauch.-issl.protivochum.inst. 18:111-115 '58.  
(MIRA 13:7)

(BACTERIOLOGY--CULTURES AND CULTURE MEDIA)  
(PASTEURILLA PESTIS) (VIBRIO COMMA)

ANTSIFEROV, M.I., MOSKOVA, L.I.

Influence of blood and its component parts on the growth of  
Bact. tularensis. Izv. Irk. gos. nauch.-issl. protivochum. inst.  
18:145-153 '58. (MIRA 13:7)

(PASTEURILLA TULARENSIS)

(BACTERIOLOGY--CULTURES AND CULTURE MEDIA)

(BLOOD)

DOMARADSKIY, I.V.; TROFIMENKO, N.Z.; NOSKOVA, L.I.

Method for the preparation of acid hydrolyzates of meat for  
culturing the plague microbe. Izv. Irk. gos. nauch.-issl. protivochum.  
inst. 21:370-373 '59. (MIRA 14:1)

(BACTERIOLOGY—CULTURES AND CULTURE MEDIA) (PLAGUE)

TROFIMENKO, N.Z.; DOMARADSKIY, I.V.; NOSKOVA, L.I.; MIKHALEVA, V. Ya.

Media from soybean acid hydrolysate for the cultivation of the  
plague microbe. Dokl. Irk. gos. nauch.-issl. protivochum. inst.  
no.5:48-52 '63 (MIRA 18:1)

DCMARADSKY, P.V.; NOSKOVA, E.I. ; TROFIMENKO, N.Z.

Dry culture media from acid hydrolysates of blood proteins for  
the cultivation of the plague microbe. Dokl. Irk. gos. nauch.-  
issl. protivochum. inst. no.5:57-58 '63 (MIRA 18:1)



NOSKOVA, L.I.; TROFIMENKO, N.Z.; KOLESINSKAYA, N.I.

Dry bouillon for the cultivation of the plague microbe under  
aeration. Dokl. Irk. gos. nauch.-issl. protivochum. inst. no.5:  
59-60 '63 (MIRA 18:1)

80211

S/126/60/009/04/001/033  
E032/E435

24.2200

AUTHORS: Karpenko, B.V., Berdyshev, A.A., Zaks, R.B. and  
Noskova, L.M.

TITLE: The Role of Indirect Exchange Interaction in the Theory  
of the Magnetism of Transition Metals and Rare Earths  
II. Antiferromagnetism 1/ 1/

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 4,  
pp 481-487 (USSR)

ABSTRACT: In the previous paper (Ref 1) a study was made of the  
indirect interaction between d-electrons in the  
ferromagnetic problem. It was shown that the indirect  
interaction between electrons in inner and incompletely  
filled shells, in the atoms of transition metals and  
rare earths, favours the formation of a ferromagnetic  
state. In the present paper an estimate is made of the  
role of indirect interaction in setting up antiferro-  
magnetic order. The Hamiltonian for an antiferromagnetic,  
according to the s-d exchange model put forward by  
Vonsovskiy (Ref 2), is of the form shown on p 481  
where  $a_k$  and  $a_k(-)$  are the Fermi second quantization  
operators for electrons with the momentum  $k$  and right

Card 1/4

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80211

S/126/60/009/04/001/033

E032/E435

The Role of Indirect Exchange Interaction in the Theory of the Magnetism of Transition Metals and Rare Earths II. Antiferromagnetism

and left spin orientations respectively,  $S_n$  is the spin operator for the n-th lattice site,  $J$  is the d-b exchange integral for two nearest neighbors,  $I$  is the s-d exchange integral (assumed independent of the momentum of conduction electrons),  $V$  is the volume of the system,  $E_k = Ak^2$  is the energy of a conduction electron,  $A$  is the transport integral (Ref 3) and  $S = 1/2$ . The spin operators can be related to the Bose operators by the two equations at the bottom of p 481 and top of p 482. The Hamiltonian obtained in this way is shown at the top of p 482 where  $z$  is the number of nearest neighbors for a given atom,

$$\gamma_\lambda = \frac{1}{z} \sum_P e^{i\mathbf{P}\cdot\boldsymbol{\rho}_\lambda},$$

and  $\boldsymbol{\rho}$  is the radius vector from the atom to its nearest neighbor atom. After diagonalization, the Hamiltonian can be thrown into the form shown at the bottom of p 482 where  $\epsilon_\lambda$  and  $g(\lambda)$  are defined by the

Card 2/4

80211

S/126/60/009/04/001/033  
EQ32/E435

The Role of Indirect Exchange Interaction in the Theory of the  
Magnetism of Transition Metals and Rare Earths II. Antiferromagnetism

relations at the bottom of p 482. The energy of the system in an external magnetic field, the free energy and the magnetization are then calculated in a way similar to that employed in the previous paper (Ref 1). It is shown that if the interaction of spin waves with conduction electrons is taken into account, then the interaction between d-electrons is characterized not by the d-d exchange integral but by a certain effective exchange integral  $J_{eff}$  which is given by Eq (6), in which  $\epsilon$  is the chemical potential of the conduction electrons. It follows from this equation that in the absence of direct d-d exchange interaction, the integral  $J_{eff}$  is negative, which means that the energy of the spin wave also becomes negative and an antiferromagnetic state cannot be reached. It is concluded that indirect exchange interaction in general favours ferromagnetism and this agrees with Zener's hypothesis. The electronic specific heat of transition metals is also affected by indirect interaction. The interaction of conduction electrons with spin waves in

Card 3/4

80211

S/126/60/009/04/001/033  
E032/E435

The Role of Indirect Exchange Interaction in the Theory of the  
Magnetism of Transition Metals and Rare Earths II. Antiferromagnetism

ferro and antiferromagnetics introduces an extra turn into the specific heat equation. It is suggested that by separating out the linear term in the experimental determination of the specific heat of a dilute alloy and by comparing it with the corresponding linear term in the specific heat equation for a pure metal, it may be possible to estimate the magnitude of the exchange integral I. There are 8 references, 2 of which are Soviet, 1 German in Russian translation and 5 English.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet im. A.M.Gor'kogo  
(Ural State University imeni A.M.Gor'kiy)

SUBMITTED: January 25, 1959

Card 4/4

S/181/62/004/001/034/052  
B104/B102

AUTHORS: Izyumov, Yu. A., and Noskova, L. M.

TITLE: Effective magnetic moment of an atom of a transition metal in a dilute alloy with a common metal

PERIODICAL: Fizika tverdogo tela, v. 4, no. 1, 1962, 217 - 224

TEXT: The authors calculate the effective magnetic moment of a paramagnetic atom in an MnCu-type alloy when exchange interaction between atom and conduction electrons are taken into account:

$$M_s = \frac{g^2 \mu_B^2}{3kT} s(s+1) \left\{ 1 + \frac{3}{4} \frac{N_s I_0}{N \epsilon} \right\} H + N_s \frac{3}{2} \frac{\mu_B^2 H}{\epsilon} \quad (22)$$

Here  $\mu_B$  is Bohr's magneton,  $g$  is the Landé factor of the ion,  $N_s$  is the number of conduction electrons in the crystal,  $N$  is the number of the lattice sites,  $I_0$  is the parameter of the exchange interaction of the paramagnetic atom with the conduction electrons,  $\epsilon$  is the Fermi end point energy.

Card 1/3

S/181/62/004/001/034/052  
B104/B102

Effective magnetic moment of ...

Studying the spatial distribution of the spin densities of the conduction electrons near the paramagnetic atom the authors obtain

$$\rho_{-}(r) - \rho_{+}(r) = \frac{3}{8} \frac{I_0}{\epsilon} \frac{S_z}{N} \sum_q f(q) (e^{iqr} + e^{-iqr}) \left( \frac{N_s}{V} \right) |U(r)|^2 \quad (32)$$

with

$$f(q) = 1 + \frac{4k_0^2 - q^2}{4k_0q} \ln \left| \frac{2k_0 + q}{2k_0 - q} \right| \quad (31)$$

for the spin polarization of the electrons near the impurity.  $\vec{r}$  is the position vector calculated from the impurity atom,  $\vec{q} = \vec{k} - \vec{k}'$ . The electron polarization decreases as the distance from the impurity atom increases. Maximum polarization occurs at  $\sim I_0 s / \epsilon$ . Averaging the initial Hamiltonian

Card 2/3

S/181/62/004/001/034/052  
B104/B102

Effective magnetic moment of ...

which comprises the Hamiltonian of the conduction electrons and that of the s-d exchange, over the statistical states of the conduction electron system the authors obtain the effective interaction Hamiltonian of the atomic spins. It was found that indirect exchange interaction varies with the distance from the impurity atom in the same way as the spin polarization of the conduction electrons. There are 6 references: 3 Soviet and 3 non-Soviet. The three references to English-language publications read as follows: K. Yosida. Phys. Rev., 106, 893, 1957; J. Friedel. Adv. Phys., 3, 446, 1954; T. Kasuya. Progr. Theor. Phys., 16, 45, 1956.

ASSOCIATION: Institut fiziki metallov AN SSSR Sverdlovsk (Institute of Physics of Metals AS USSR, Sverdlovsk) ✓

SUBMITTED: August 3, 1961

Card 3/3



KOTELENETS, H.S.; NOSKOVA, L.V.

Increased output of chemical products of coking. Koks i  
khim. no.16:36-39 '61. (MIRA 15:2)

1. Vostochnyy uglekhimicheskiy institut.  
(Coke industry--By-products)

BOROVSKIY, V.M.; VOLKOV, A.I.; NOSKOVA, L.V.; ORLOVA, M.A.

Natural regions of Kzyl-Orda Province. Izv. AN Kazakh SSR. Ser.  
bot. i pochv. no. 3:3-28 '62. (MIRA 15:12)

(Kzyl-Orda Province—Soils)  
(Kzyl-Orda Province—Reclamation of land)

KOTELENETS, M.S.; NOSKOVA, L.V.

Yields and quality of chemical products of coking from charges  
with an increased quantity of gas and free-burning coals. ~~Koks~~  
1 khim. no. 11:44-46 '62. (MIRA 15:12)

1. Vostochnyy uglekhimicheskiy institut.  
(Coke industry—By-products)

NOSKOVA, L.V.

Some characteristics of the methods of large-scale soil  
mapping on state and collective farms of the Virgin Territory.  
Izv. AN Kazakh. SSR. Ser. biol. nauk 3 no.5:15-22 S-0 '65.  
(MIRA 18:11)

NOSKOVA, M.; PIKA, L., inz., dr.

Photometric determining of small quantities of  $\text{SiO}_2$ . Energetika Cz 11  
no.10:503 0 '61.

*Noskova, M.A.*

129-4-8/12

AUTHORS: Venkov, B. V., Borisova, I. I., and Noskova, M.A.  
TITLE: Bright isothermal hardening of cold coiled springs  
made of the steel 60S2A. (Svetlaya izotermicheskaya  
zakalka pruzhin kholodnoy navivki iz stali 60S2A).  
PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, No.4,  
pp. 44-45 (USSR).

ABSTRACT: At present heavily loaded springs are treated in  
accordance with a long cycle comprising hardening,  
tempering in saltpetre, boiling and sand blasting.  
Therefore, introduction of bright isothermal hardening  
into spring manufacture would be highly effective from  
the economic point of view. The aim of the work described  
in this paper was to determine the possibilities of  
application of bright isothermal hardening of cold coiled  
springs made of wire of up to 6 mm dia. Heating prior  
to hardening was effected in a electrode salt bath  
(NaCl) in which specimens of the steel 60C2A were heated  
to 850°C and then rapidly transferred into an alkali  
bath consisting of 63% KOH and 37% NaOH. After holding  
for a certain duration in the isothermal bath, the  
specimens were finally quenched in water. The experi-  
ments have shown that optimum results are obtained when

Card 1/3

129-4-8/12

Bright isothermal hardening of cold coiled springs made of the steel 60S2A.

hardening in an isothermal medium with a temperature of 270°C and a holding time of twenty minutes; a higher hardening temperature does not ensure the required elasticity of the metal and leads to settling of the springs. A holding time below twenty minutes does not ensure full decomposition of the austenite, whilst increasing the holding time above twenty minutes has practically no further influence on the properties of the springs. The structure of the steel after optimum heat treatment consists of acicular troostite and a slight quantity of residual austenite (as shown in a photo). The characteristics of the steel 60C2A after isothermal hardening proved to be superior to the characteristics obtained after heat treatment according to the conventionally used heat treatment cycle; the respective data are entered in Table 1, p.44. A small batch of springs from 5 mm dia. wire were treated according to the here described regime. The results of comparative tests of these springs with those produced by means of the currently used heat treatment cycle using wire produced from the same melt are entered in Table 2, p.44.

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129-4-8/12

Bright isothermal hardening of cold coiled springs made of the steel 60S2A.

The investigations have shown that after isothermal hardening springs are liable to a greater degree of settling due to over-squeezing, which is the consequence of an increased content of residual austenite. However, after clamping none of the springs had a settling exceeding 1%, which can be considered a good result since a maximum of 3% is the specified standard. After isothermal hardening, the springs had a bright silvery surface; after washing and passivation, these springs were phosphated. As regards the quality of the coating, the experimental batch of springs did not differ from sand blasted specimens. Special tests showed that the corrosion stability of these springs is fully satisfactory. The carried out work showed that introduction of the bright isothermal hardening in spring manufacture can reduce a number of laborious operations, bringing about improvement in the conditions of labour and reduction in the production costs.

There are 1 figure and 2 tables.

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(Note: This is a complete translation except for the tables and figure caption).

AVAILABLE: Library of Congress.



32052

S/051/61/011/005/012/018  
E202/E192

24.3500 (1137, 1138)

AUTHORS: Bundel', A.A., Guretskaya, Z.I., and Noskova, M.N.  
TITLE: Isolation of the selenium band in the spectra of the  
sulphide-selenide luminophors

PERIODICAL: Optika i spektroskopiya, v.11, no.5, 1961, 656-660

TEXT: The study of luminophors of the ZnS-ZnSe type, at -196, +20 and +120 °C, with the 30-fold variations of the intensity of excitation, by analysing their afterglow (decay) spectra, showed that the spectra of these luminophors contain two bands. One of these is due to zinc and the other to the introduction of the selenide. It was found that at room temperature and with the increased ZnSe content up to 10 wt.%, there was a steady suppression of the zinc band by the selenium band. When the ZnSe content exceeded 10 wt.% there was smooth displacement of the selenium band only, towards the longer wavelengths. The spectra at -196 °C showed that the centres of luminescence of the blue band of Zn are present up to the ZnSe content of 75 wt.%. The selenium band was isolated and clearly visible in high temperature

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Isolation of the selenium band ...

32052  
S/051/61/011/005/012/018  
E202/E192

spectra (+120 °C), when the zinc band suffered temperature quenching. The spectra were obtained with the help of monochromator mark YM-2 (UM-2) and a photomultiplier  $\Phi\gamma$ -19 (FEU-19).

There are 5 figures and 6 references: 2 Soviet-bloc and 4 non-Soviet-bloc. The English language references read as follows:  
Ref.3: H.W. Leverenz. An Introduction to Luminescence of Solids, N.Y., 1950.

Ref.4: H.A. Klasens, J. Electrochem. Soc., v.100, 72, 1953.  
Ref.5: G.R. Fonda. J.Opt.Soc.Amer., v.12, 917, 1952.

SUBMITTED: December 15, 1960

Card 2/2

GURVICH, D.B.; BALANDINA, V.A.; BRICHKIN, N.I.; NOSKOVA, M.P.; MALIKOV, V.I.

Device for automatic determination of moisture content by means  
of Fischer's reagent. Plast.massy no.11:39-43 '61. (MIRA 14:5)  
(Titrimeters)

5(3,4)  
AUTHORS: Noskova, N. B., Poroshin, K. T., Kozarenko, T. D. SOV/62-59-5-31/40

TITLE: On the Accelerating Effect of the Peptide Esters on the Polycondensation Reaction of Glycine-ethyl Ester (Ob uskoryayushchem deystvii na reaktsiyu polikondensatsii etilovogo efira glitsina efirov peptidov)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 5, pp 935-936 (USSR)

ABSTRACT: On the basis of the observed acceleration of the condensation reaction of glycine-ethyl ester by addition of the esters of the polymer, the autocatalytic character of this reaction has already been pointed out in previous papers (Ref 1). In the present paper the autocatalytic character of the polycondensation reaction of the esters of amino-acids is investigated, for which purpose the influence exercised by certain additions of tripeptide and polycondensate upon the rate of the polycondensation reaction of glycine-ethyl ester is subjected to a close examination. The polycondensation reaction mentioned was investigated for the purpose of determining its character, i.e. with the addition of  $\text{CO}_2$ ,  $\text{CO}_2$  + tripeptide ester, and

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SOV/62-59-5-31/40

On the Accelerating Effect of the Peptide Esters on the Polycondensation Reaction of Glycine-ethyl Ester

further without the addition of  $\text{CO}_2$ , addition of polycondensate, and addition of tripeptide ester in dependence on the time of reaction (Figs 1,2). It was found that the reaction time of polycondensation in the absence of  $\text{CO}_2$  passes considerably more slowly and is divided into two stages. A rather long first stage, in which hardly any polycondensation occurs at all, (58 hours) is followed by a second in which the kinetics of the development of polycondensation is of the first order. The presence of polycondensate shortens the first stage. The reaction kinetics of the second stage remains one of the first order owing to the additions. There are 2 figures and 8 references, 4 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: October 22, 1958  
Card 2/2

5(3)

AUTHORS:

Kozarenko, T.D., Noskova, N.B.,  
Poroshin, K.T.

SOV/62-59-7-25/38

TITLE:

On the Chlorhydrate-Method for the Determination of the  
Monomer in the Reaction of Polycondensation of the Esters  
of  $\alpha$ -Amino Acids (O khlorgidratnom metode opredeleniya  
monomera v reaktsii polikondensatsii efirov  $\alpha$ -aminokislots)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,  
1959, Nr 7, pp 1324 - 1327. (USSR)

ABSTRACT:

The synthesis of polyamino acids by polycondensation  
develops chiefly in the first stage by successive chain  
formation from the monomers (Type A) and in the further stages  
by interreaction of the polymer molecules  
(Type B). The reaction-type A develops more rapidly than  
the type B. The consumption of monomers for chain formation  
is determined in the final product from the non-reacting  
monomers. Separation of these monomers is easy, but the  
determination in the ether extract is connected with some  
difficulties. A new method was elaborated by the authors  
precipitating the monomers as their hydrochlorides. Beside  
the possibility of quantitative separation of the salts from

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On the Chlorhydrate-Method for the Determination of the Monomer in the Reaction of Polycondensation of the Esters of  $\alpha$ -Amino Acids. SOV/62-59-7-25/38

the ether extract, this method offers the advantage that the salts are also not destroyed by warming to 100°; so they may be used for further polycondensation. The determination of the ethyl esters of glycine, d, l-phenylalanine l-alanine, d, l-valine and l-proline is described in the experimental part. The results are listed in tables 1-4. There are 4 tables and 12 references, 2 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR  
(Institute of Organic Chemistry imeni N.D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: November 30, 1957

Card 2/2

NOSKOVA, N. F.

Chemical Abstracts  
May 25, 1954  
Petroleum

Lepinsk bentonite clay as a catalyst for cracking reaction. D. V. Sokol'skiy, L. A. Buvalkina, and N. F. Noskova. *Izv. Akad. Nauk Kazakh. S.S.R. No. 129, 1953, Khim. No. 7, 39-48 (1953).*—The Lepinsk bentonite clay, activated by 20% cold HCl 4 days and washed and dried 9 hrs. at 50° and 6 hrs. at 150°, is an active cracking catalyst for treatment of petroleum, yielding lower hydrocarbons which boil from 30° up. The utilization of pressure or addn. of 1%  $V_2O_5$  to the clay is not necessary for cracking activity. The best cracking conditions are: 450°, space velocity 0.6, regeneration time 4 hrs.; pressure-treated clay utilizes greater space velocities (0.85);  $V_2O_5$ -treated clay has the same optimum operating conditions as untreated clay. However, the use of pressure and addn. of  $V_2O_5$  reduce the time of burn-out of coke by 2 hrs. In all cases after 3-4 expts. the yield of gasoline declined to about 17-18% and then remained const. G. M. Kosolapoff

9-24-54  
GP



S/850/62/006/000/002/004  
B119/B101

AUTHORS: Sokol'skiy, D. V., Noskova, N. F.  
TITLE: Competitive hydrogenation of acetylene and phenyl acetylene  
SOURCE: Akademiya nauk Kazakhskoy SSR. Institut khimicheskikh nauk.  
Trudy. v. 8. Alma-Ata, 1962. Kataliticheskiy sintez  
monomerov. 90-99

TEXT: Hydrogenation tests of  $C_2H_2 + C_6H_5C_2H$  mixtures were made using the catalysts:  $Pd/CaCO_3$  (with 5% Pd), skeletal Ni, Pd:Pt (3:1), in 50% ethanol as well as in 0.1 N ethyl-alcoholic KOH, at 20 and 40°C. The two first-mentioned catalysts were used with admixtures of lead acetate as well as without these. The rate of flows of the mixture  $C_2H_2 : H_2 = 1:2$  were 15 ml/min of the former and 30 ml/min of the latter. The tests showed that the hydrogenation of phenyl acetylene in the mixture proceeds faster than that of acetylene, irrespective of the catalyst. Acetylene and phenyl acetylene in the mixture can be hydrogenated up to 98-100%.

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Competitive hydrogenation of ...

S/850/62/008/000/002/004  
B119/B101

selectively to ethylene and styrene. At higher reaction temperatures, the selectivity of hydrogenation decreases; it depends on the catalyst as follows:  $\text{Pb/CaO}_3 + \text{Pb} > \text{Pd-Pt} > \text{Pd/CaCO}_3$  in 0.1 N KOH  $> \text{Ni} + \text{Pb}$  in 0.1 N KOH  $> \text{Pd/CaCO}_3$  in 50% ethanol  $> \text{Ni}$ . The polymerization of acetylene during the hydrogenation is favored by elevated reaction temperatures, by low flow rates of the  $\text{C}_2\text{H}_2 + \text{H}_2$  mixture, and by use of the catalysts  $\text{Pd/CaCO}_3 + \text{Pb}$ ,  $\text{Pd-Pt}$ ,  $\text{Pd/CaCO}_3$ ,  $\text{Ni+Pb}$ ,  $\text{Ni}$  in descending order. There are 6 tables. The most important English-language reference is: V. L. Framton, F. D. Edwards, H. K. Henze J.Am.Chem.Soc., 73, 4432 (1951).

Card 2/2

SOKOL'SKIY, D.V., akademik; NOSKOVA, N.F.

Charge curves of skeletal nickel, Pd/CaCO<sub>3</sub>, and platinum black  
in anode polarization by acetylene. Dokl. AN SSSR 145 no.5:  
1095-1097 '62. (MIRA 15:8)

1. Institut khimicheskikh nauk AN KazSSR. 2. AN KazSSR (for  
Sokol'skiy).  
(Polarization (Electricity)) (Catalysts) (Acetylene)

ACCESSION NR: AP4041403

S/0020/64/156/006/1386/1388

AUTHOR: Zakumbayeva, G. D.; Noskova, N. F.; Konayev, E. N. Sokol'skiy, D. V. (Academician AN KazSSSR)

TITLE: Liquid phase oxidation of carbon monoxide

SOURCE: AN SSSR. Doklady\*, v. 156, no. 6, 1964, 1386-1388

TOPIC TAGS: carbon monoxide, liquid phase oxidation, palladous chloride catalyst, cupric chloride catalyst, bromide ion, iodide catalyst, acetate ion, catalyst activity, catalyst regeneration, catalyst life

ABSTRACT: The liquid phase oxidation of low concentrations (0.3-2%) of carbon monoxide in a circulating system at 20, 40 and 60C was investigated. The CO-containing gas was bubbled at 150-300 liters/hour through the catalyst solution at the bottom of the reactor. At 20C only 12% oxidation was attained using  $\text{PdCl}_2$  or  $\text{CuCl}_2$  in 0.02-0.1N HCl; this yield was lowered to 6% at 40C. With the addition of bromide or iodide ion oxidation was increased to 20% and was independent of temperature. A maximum oxidation of 35% was attained with  $[\text{Pd}^{2+}] : [\text{Cu}^{2+}] = 0.22$ ,  $[\text{Cl}^-] : [\text{Br}^-] = 0.2$  and 0.02N HCl.

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ACCESSION NR: AP4041403

The formation of the active Pd complex  $[PdCl_3Br]^{2-}$  or  $[PdCl_2Br_2]^{2-}$  was assumed. The addition of acetate ion increased oxidation to 50% at 20C and 55% at 40C; it reduced catalyst activity at 60C. Changing the reaction medium from acid to weakly alkaline increased oxidation from 20 to 70%. Increasing the partial pressure of the CO increased oxidation. The catalyst could be used 5-6 hours without regeneration. Introduction of air into the system completely reduced catalyst activity in 1-2 hours. Orig. art. has: 3 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 09Mar64

ENCL: 00

SUB CODE: GC, IE

NR REF SOV: 004

OTHER: 007

Card 2/2

ZAKUMBAYEVA, G.D.; NOSKOVA, N.F.; KONAYEV, E.N.; SOKOL'SKIY, D.V., akademik

Low-temperature oxidation of carbon monoxide by aqueous solutions  
of palladium salts. Dokl. AN SSSR 159 no.6:1323-1325 D '64  
(MIRA 18:1)

1. Institut khimicheskikh nauk AN KazSSR. 2. AN KazSSR (for  
Sokol'skiy).

NOSKOVA, N.I.

Category : USSR/Solid State Physics - Diffusion. Sintering

P-6

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6682

Author : Arkharov, V.I., Noskova, N.I.

Inst : Ural' University

Title : On the Influence of a Silver or Zinc Impurities in Aluminum  
on the Speed of Diffusion of Copper.

Orig Pub : Fiz. metallor i metallovedeniya, 1956, 2, No 3, 472-476

Abstract : It was established that in a solid solution of silver or zinc in aluminum, at high contents of silver or zinc (10 -- 20%), the speed of diffusion of copper is substantially greater than in pure aluminum. An explanation is offered for the previously-established accelerating influence of small impurities (0.2%) of silver (or zinc) on the speed of decomposition of supersaturated solid solution of copper in aluminum. This influence can be caused by the fact that positive internal adsorption of silver (or zinc) takes place on the periphery of the produced particles of the phase that becomes precipitated from the very beginning stages of their formation, thanks to which the particles turn out to be

Card : 1/2

NOSKOVA, N.I.; PAVLOV, V.A.; YUNIKOV, B.A.

X-ray analysis of crystal lattice dislocations and energy bonds  
of aluminum-magnesium  $\alpha$ -solid solutions. Fiz.met. i metalloved 3  
no.3:557-560 '56. (MIRA 10'3)

1. Institut fiziki metallov Ural'skogo filiala AN SSSR.  
(Aluminum-magnesium alloys)  
(Crystal lattices)



AUTHORS: Noskova, N. I. and Pavlov, V. A. SOV/126-6-2-21/34

TITLE: Investigation of the Fine Structure of Solid Solutions of Aluminium with Magnesium and of Nickel with Copper  
(Issledovaniye tonkoy struktury tverdykh rastvorov al'yuminiya s magniyem i nikelya s med'yu)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 2, pp 334-338 (USSR)

ABSTRACT: The work described in this paper consists of measuring the static and dynamic distortions of the crystal lattice, determination of the block pattern in the deformed state, measurement of type II distortions and determination of the temperature dependence of the "static" distortions for the solid solution nickel-copper. The following were investigated: 1) pure aluminium containing 0.0017% Fe, 0.0011% Si, 0.01% magnesium; alloys of aluminium with 0.12 and 0.04% magnesium. 2) Pure nickel obtained by fusion in a vacuum furnace and alloys containing 10, 20, 40 and 60% copper also produced in a vacuum furnace. The specimens for investigating the static and the dynamic distortions were produced as follows: powder produced by Card 1/4 filing and passed through a sieve was annealed in vacuum,

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Investigation of the Fine Structure of Solid Solutions of Aluminium  
with Magnesium and of Nickel with Copper

whereby the annealing regimes were so chosen (Table 1, p 335) that the extinction effect is eliminated. The annealed powder was glued onto a copper wire of 0.3 mm dia; the specimen diameter was  $1.00 \pm 0.02$  mm. The characteristic temperature of the pure metals and of the solid solutions was determined by decyphering X-ray patterns obtained from the investigated specimens at the temperatures of liquid nitrogen, +20 and +200°C. For determining the type II distortions and the block pattern, the filings were not annealed; the filing and the exposures for nickel-base alloys were effected at room temperature. Powders of aluminium and of alloys of Al with magnesium were produced by filing at liquid nitrogen temperature, since for the filing carried out at room temperature the type II distortions become eliminated and the X-ray patterns do not reveal any blurred lines with a high degree of reflection. The type II distortions in aluminium and aluminium alloys were determined by using copper  $K_{\alpha}$ -radiation; all the other measurements were effected with a molybdenum  $K_{\alpha}$ -radiation. In the case of nickel specimens, aluminium and

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Investigation of the Fine Structure of Solid Solutions of Aluminium with Magnesium and of Nickel with Copper

zirconium filters ( $d = 0.22 \text{ mm}$ ) were used. Calculation was based on the lines with differing index squares (20 for aluminium and its alloys, 24 for determining type II distortions of nickel and its alloys, 68 for determining the characteristic temperature). All the lines were photometered at least three times. Thereby, the accuracy of the characteristic temperature was 3% of the measured value. On the basis of the results, which are graphed and tabulated, the following conclusions are arrived at:

1. In the investigated solid solution the type II distortions increase with increasing content of the second component in the solid solution, whilst the degree of block formation in the deformed state (90% deformation) changes little as a function of alloying.
2. A possible cause of hardening of the solid solutions of aluminium with magnesium is the presence of large static distortions caused by the atoms of the second component.
3. In the solid solutions nickel-copper hardening is observed in spite of the presence of the dynamic

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Investigation of the Fine Structure of Solid Solutions of Aluminium  
with Magnesium and of Nickel with Copper

distortions (the characteristic temperature as a function  
of alloying decreases). The latter can be elucidated by  
the formation in the solid solutions of microscopic non-  
uniformities which impede the processes of plastic  
deformation and of relaxation.

There are 3 figures, 3 tables and 7 references, 5 of  
which are Soviet, 2 German.

ASSOCIATION: Institut fiziki metallov UFAN SSSR  
(Institute of Metal Physics, Ural Branch of the Ac.Sc.,  
USSR)

SUBMITTED: July 19, 1957

Card 4/4 1. Aluminum alloys--Structural analysis 2. Nickel alloys--  
Structural analysis 3. Alloys--Production 4. Vacuum furnaces--  
Applications

PAVLOV, V.A.; GAYDUKOV, M.G.; DATSKO, O.I.; NOSKOVA, N.I.; PERETURINA,  
I.A.

Effect of structural characteristics on metal behavior at  
high temperatures. Issl. po sharopr. splav. 4:26-35 '59.

(MIRA 13:5)

(Nickel-copper alloys--Metallography)

67719

18.1250

AUTHORS: Noskova, N. I. and Pavlov, V. A. SOV/126-7-3-15/44

TITLE: X-Ray Study of Distortions and Bond Forces in the Crystal Lattice of Nickel-Base Solid Solutions (Rentgeno-graficheskoye izucheniye iskazheniy i sil svyazi kristallicheskoy reshetki tverdykh rastvorov na osnove nikelya)

PERIODICAL: Fizika metallov i metallovedeniye, Vol 7, Nr 3, pp 400-404 (USSR), 1959

ABSTRACT: In this work static and dynamic distortions caused by alloying have been measured in relation to heat treatment and plastic deformation, and the block formation and secondary distortions in the deformed state have been determined. Solid solutions obtained by alloying nickel (99.99%) with copper (99.95%) and aluminium (99.99%) were studied. The composition of the solid solutions investigated is given in Table 1. All solid solutions were melted in a vacuum furnace. The static and dynamic distortions were determined by a method described in Refs.7 and 8. The block size and the extent of secondary distortions in the deformed state were determined by a method similar to that applied by Iysak

Card 1/4 (Refs.9 and 10). The method of preparation of the specimens.

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SOV/126-7-3-15/44

**X-Ray Study of Distortions and Bond Forces in the Crystal Lattice of Nickel-Base Solid Solutions**

for investigation has been described in Ref.2. The results of a study of the fine structure of solid solutions of nickel with 10, 20, 40 and 60% Cu are partly published in Ref.2. The characteristic temperature, and the magnitude of static and dynamic distortions of the crystal lattice of these solid solutions are given in Table 2. The nickel-aluminium solid solutions in powder form were annealed prior to investigation. The annealing specifications are indicated in Table 3. Subsequently the static and dynamic distortions of the crystal lattice and the characteristic temperature were determined. The results are given in Table 3. The physical nature of hardened one-phase solid solutions is not absolutely clear yet. In the present work the influence of plastic deformation on the fine structure has been studied by deforming the above solid solution by filing at room temperature. This method of deformation has been chosen for its convenience for X-ray investigation. Specimens were made from the powder for taking X-ray pictures by the Debye method. X-ray pictures were taken at room

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SOV/126--7-3-15/44

X-Ray Study of Distortions and Bond Forces in the Crystal Lattice of Nickel-Base Solid Solutions

temperature and at the temperature of liquid nitrogen with the aim of establishing the characteristic temperature of the specimens in the deformed state. X-ray pictures were taken of annealed and deformed specimens in  $K_{\alpha}$ -molybdenum irradiation. Besides the secondary distortions and the block size in deformed specimens of nickel-aluminium, solid solutions were also determined by exposure to  $K_{\alpha}$ -iron irradiation. The results of the investigation are shown in Table 4. As a result of the above experiments the authors arrived at the following conclusions.

1. When solid solutions form by alloying nickel with lead and aluminium, static distortions arise, the magnitude of which increases with alloying (within the range of the additions investigated). The characteristic temperature rises on alloying nickel with aluminium, and drops on alloying nickel with copper.

2. Plastic deformation (by filing) at room temperature lowers the characteristic temperature of nickel alloys containing 2.93% aluminium, but raises it in a nickel alloy containing 40% copper.

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X-Ray Study of Distortions and Bond Forces in the Crystal Lattice of Nickel-Base Solid Solutions

3. For under-load processes the possibility of raising or lowering the characteristic temperature must be taken into consideration.

There are 4 tables and 14 references, of which 11 are Soviet, 1 English and 2 German.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics of Metals, Ac. Sc., USSR)

SUBMITTED: July 23, 1958

Card 4/4

S/520/59/000/022/016/021  
E073/E535

AUTHOR: Noskova, N.I.

TITLE: Influence of the Heat Treatment Temperature on the Fine Structure of Nickel-Base Solid Solutions

PERIODICAL: Akademiya nauk SSSR. Ural'skiy filial, Sverdlovsk. Institut fiziki metallov. Trudy, no.22, 1959, pp.113-115

TEXT: G.V. Kurdymov and N. T. Travina (Ref.1) and V. A. Il'ina et al. (Ref.2) pointed out the influence of heat treatment on the characteristic temperature. This is particularly important for producing the strongest state of the solid solution. The influence of the treatment temperature on the characteristic temperature is associated with the formation in the solid solution of a near-range order at certain specific temperatures. Study of the influence of heat treatment on the characteristic temperature and on the magnitudes of the dynamic and static distortions represents a continuation of the earlier investigations by the author of this paper and V. A. Pavlov (Ref.3) of the influence of alloying and plastic deformation on the fine structure of nickel-copper and nickel-aluminium solid solutions. M. G. Gaydukov and V. A. Pavlov (Ref.4) observed that the highest strength state during relaxation occurs

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# Influence of the Heat Treatment Temperature on the Fine Structure of Nickel-Base Solid Solutions

in the temperature range 500 to 600°C and, therefore, the behaviour during heat treatment of these solid solutions is of interest. In this paper the fine structure of solid nickel solutions as a function of the annealing temperature is studied. Solid solutions produced from 99.99% Ni, 99.95% Cu and 99.99% Al were investigated. All the solid solutions containing 20 and 40% copper and also 0.023 and 2.93% aluminium were smelted in a vacuum furnace. From the solid solutions powders were prepared, which were annealed at the temperatures given in Table 1, and then used for obtaining X-ray diffraction patterns at room temperature and at liquid nitrogen temperature.  $K_{\alpha}$ -molybdenum radiation was used. From the X-ray patterns the characteristic temperature of the solid solutions was determined. Furthermore, the dynamic distortions were obtained. The crystal lattice parameter of the solid solutions was measured after various heat treatments ( $K_{\alpha}$  - copper radiation). Simultaneously the microhardness was also measured. It can be seen from the data of Table 1 that for solid nickel solutions with 40% Cu and for nickel with 2.93% Al, the characteristic temperature changes

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compared to that pertaining to the deformed state after heat treatment at 700 and 400°C, respectively. Thereby, a change was also observed in the crystal lattice parameter. Prior to determining the crystal lattice parameter in the deformed state, the specimens were subjected to a 30% deformation by compression. In the case of filings, the powder had a considerably higher deformation and, according to Debye patterns, the change in the parameter after filing was the same as after compression. The solid solution of nickel with 0.023% Al did not change its characteristic temperature as a function of the annealing temperature. The blurring of the lines was associated with the presence of type II distortions and block formation, it ceased at 500°C for a solid solution of nickel with 20% Cu, at 700°C for a solid solution of nickel with 40% Cu and at 400°C for solid solutions of nickel with 0.023 and 2.95% Al. Microhardness measurements have shown that it changes as a function of the treatment and the cooling speed. Similar changes in the microhardness for solid solutions of nickel plus 40% Cu as a

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function of the treatment temperature is difficult to explain for the temperature of 600°C (Table 2). In this temperature range a removal of type II stresses occurs and the high microhardness can be explained only by the structural features of the solid solution at this temperature. The change in the characteristic temperature and the parameter of the crystal lattice at 700°C indicates a cessation of this structural feature. The changes in the characteristic temperature, the crystal lattice parameter and the microhardness as a function of the heat treatment temperature can be explained if it is assumed that such a degree of near-range order is established in the investigated solid solutions which leads to a similar change in the characteristics of the fine structure. The possibility of formation of a near-range order in the investigated solid solutions was pointed out by several authors (Refs.5-8).

**Conclusions.**

1) In the solid solutions Ni + 40% Cu and Ni + 2.93% Al a change

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occurs in the characteristic temperature of deformed specimens after annealing at 700 and 400°C, respectively, as compared to the characteristic temperature in the initial deformed state.

2) In the same temperature range a change occurs in the crystal lattice parameter of solid solutions which is evidenced by a blurring of the lines.

3) Such changes of the characteristics of the fine structure of solid solutions can be explained by the formation or disruption of a near-range order in this temperature range in solid solutions of nickel with aluminium and nickel with copper.

The work was performed in the Mechanical Properties Laboratory of the Institut fiziki metallov AN SSSR (Institute of Physics of Metals AS USSR). Acknowledgments are expressed to V. A. Pavlov for his assistance and for evaluating the results. There are 2 tables and 8 references: 5 Soviet and 3 non-Soviet.

(Note: This is a slightly condensed translation)

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Legend

1. Solid solution.
2. Characteristic temperature, °K.
3. Dynamic distortion, Å.
4. Lattice parameter, kX.
5. Annealing temperature, °C.
6. Nickel + 20% Cu.
7. Nickel + 40% Cu.
8. Nickel + 2.93% Al.
9. Deformed State.

Table 1

Таблица 1

① Твердый раствор	② Характеристическая температура, °K	③ Динамические искажения, Å		④ Параметр решетки, кX	⑤ Температура отжига, °C
		T=180°C	T=225°C		
⑥ Никель + 20% меди	340	0,05	0,08	3,5334	деф. сост. ⑨
• + 20% •	340	0,05	0,08	3,5332	500
• + 20% •	330	0,05	0,09	3,5334	620
• + 20% •	340	0,05	0,08	3,5330	700
⑦ Никель + 40% меди	350	0,04	0,06	3,5444	деф. сост. ⑨
• + 40% •	350	0,04	0,06	3,5447	500
• + 40% •	360	0,04	0,06	3,5443	600
• + 40% •	320	0,05	0,09	3,5498	700
• + 40% •	320	0,05	0,09	3,5502	800
⑧ Никель + 2,93% алюминия	340	0,05	0,08	3,5346	деф. сост. ⑨
• + 2,93% •	410	0,04	0,07	3,5331	400
• + 2,93% •	420	0,04	0,06	3,5330	500
• + 2,93% •	410	0,05	0,07	3,5335	800

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Table 2

Solid Solution	Microhardness (kg/mm <sup>2</sup> ) after annealing at					Cooling conditions
	Deformed state	400°C	600°C	700°C	900°C	
Nickel + 40% Cu	308	105	181	-	100	Air cooled
" +2.93% Al.	260	165	-	140	135	Air cooled
" +2.93% Al	260	228	-	-	-	Water quenched

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12.8200

E193/E480

AUTHORS: Pavlov, V.A., Gaydukov, M.G., Noskova, N.I.  
Mel'nikova, V.V.

TITLE: The role of slip and diffusion in plastic deformation  
during creep of nickel-copper alloys

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.12, No.1,  
pp.97-107

TEXT: This paper was presented at the session of the Nauchnyy  
sovet po probleme prochnosti i plastichnosti tverdykh tel AN SSSR  
(Scientific Council on the Problems of Strength and Plasticity of  
Solids AS USSR) in June 1960.

Slip or diffusion constitute the two possible mechanisms of plastic  
deformation. No agreement has been reached regarding the  
mechanism of plastic deformation in creep. According to one  
school of thought represented by S.N.Zhurkov, the diffusion  
processes play no significant part in plastic deformation in creep,  
an opposite view being held by the other school of thought  
represented by B.Ya.Pines. Since both these opinions are based on  
experimental data, the most likely explanation of this apparent  
contradiction is that either mechanism can operate depending on the  
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conditions of stress and temperature, and the object of the present investigation was to study the effect of these two factors on the mechanism of plastic deformation in creep of Ni-Cu alloys. The Ni-Cu system was chosen for this purpose because (a) an increase in the Cu content in Cu-Ni alloys brings about a decrease in the elastic modulus and the characteristic temperature of these alloys and an increase in the magnitude of the static distortions of the crystal lattice and (b) the activation energy for diffusion of copper in nickel is almost 1.5 times higher than that for self-diffusion of pure nickel, the former amounting to 35000 to 40000 cal/mol. These data indicate that the addition of Cu to Ni decreases the interatomic bond forces and, consequently, increases the intensity of the diffusion processes, even at relatively low temperatures. The vacuum-melted experimental alloys, containing 10, 20, 40 and 60% Ni, were prepared from 99.99% Ni and electrolytic copper containing less than 0.05% impurities. The ingots were forged into 18 mm diameter rods from which the test pieces, 6 mm in diameter and 50 mm (for creep tests) or 100 mm (for stress relaxation tests) long, were prepared.

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These were annealed at 800 to 900°C, the annealing temperature for each alloy having been selected so as to obtain the same grain-size (approx. 0.1 mm) in all test pieces. The rate of plastic deformation varied between  $10^{-4}$  and  $10^{-11}$  (sec<sup>-1</sup>). In the first stage of the investigation, the effect of alloy composition and experimental conditions on the rate of deformation  $\dot{\epsilon}$  was studied. The results relating to steady creep are reproduced in Fig.1, where  $\log \dot{\epsilon}$  (sec<sup>-1</sup>) is plotted against the Cu content (%) in the alloys tested at 5 kg/mm<sup>2</sup>. The test temperature is indicated by each curve. In Fig.2,  $\log \dot{\epsilon}$  (sec<sup>-1</sup>) is plotted against the Cu content (%) in alloys tested at 600°C, the magnitude of the applied stress (2 and 9 kg/mm<sup>2</sup>) being indicated by each curve. In the next stage of the investigation the relationship between the applied stress  $\sigma$  and the activation energy  $Q$  of the deformation process was studied. The results are reproduced graphically. In Fig.5,  $Q$  (kcal/mol) is plotted against  $\sigma$  (kg/mm<sup>2</sup>), the experimental points denoted by crosses, circles and dots relating, respectively, to pure nickel, 40% Cu-Ni alloy and 60% Cu-Ni alloy. In Fig.6,  $\log \dot{\epsilon}$  (sec<sup>-1</sup>) is plotted against  $10^3/T$  (where  $T$  is the absolute temperature) for the 40% Cu-Ni

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alloy tested under conditions of stress relaxation, curves 1 to 7 relating, respectively, to  $\sigma = 0.4, 0.6, 0.8, 1.0, 1.2, 1.4$  and  $1.6 \text{ kg/mm}^2$ . Fig.7 shows the same relationship for the 40% Cu-Ni alloy tested under conditions of creep, curves 1 to 4 relating, respectively, to  $\sigma = 2, 3, 4$  and  $5 \text{ kg/mm}^2$ . Finally, the effect of applied stress and temperature on the rate of deformation was determined. Some of the results are reproduced in Fig.8 and 9. In Fig.8,  $\dot{\epsilon} \times 10^9 \text{ (sec}^{-1}\text{)}$  is plotted against  $\sigma \text{ (kg/mm}^2\text{)}$  for the 40% Cu-Ni alloy tested at  $600^\circ\text{C}$ , Fig.9 showing the same relationship for the 60% Cu-Ni alloy. Correlation of these with results of X-ray diffraction analysis, data obtained by other workers, and theoretical considerations led the present authors to the following conclusions. (1) The processes of creep and relaxation can be regarded as a result of a complex interaction between deformation by slip and diffusion. The relative part played by each of these mechanisms depends on temperature and on the magnitude of the applied stress. (2) Under the conditions of low temperature and high applied stresses, the plastic deformation in creep can be described by the expression, due to S.N.Zhurkov,

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$$\dot{\epsilon} = \dot{\epsilon}_0 e^{-\frac{Q - \gamma\sigma}{RT}}$$

High activation energy and the fact that the above relationship is valid for low temperature and high rates of deformation indicates that under these conditions plastic deformation in creep takes place predominantly by the mechanism of slip. (3) Under conditions of high temperature and low applied stresses, the activation energy for the deformation increases with decreasing stress and approaches the activation energy for the diffusion of the alloying element. In this case the process of deformation in creep can be described by the known equation for plastic deformation by diffusion:

$$\dot{\epsilon} = \frac{D\sigma a^3}{b^2 kT}$$

Under these conditions of deformation the strength of alloys decreases and may be lower than that of unalloyed metal which indicates the predominance of the diffusion mechanism of deformation.  
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(4) In the intermediate region of temperature and stress, plastic deformation by slip takes place side by side with the diffusion relaxation process. The results of X-ray analysis indicate that under these conditions the plastic deformation brings about fragmentation of the crystals and formation of blocks. In this case the deformation in creep is approximately described by the formula due to J.J.Weertman (Ref.28: J.Appl.Phys., 1955, 26, 1213)

$$\dot{\epsilon} = C [\sigma^{\alpha}/RT] \exp(-Q/RT)$$

There are 12 figures, 3 tables and 28 references: 18 Soviet and 7 non-Soviet. The four most recent references to English language publications read as follows: Ardley G.W. Acta met., 1955, 3, 525; Greenough A.P. Phil. Mag., 1958, 3, 1032; McLean D. Inst.Metals, 1952-53, 81, 287; Weertman J. J.Appl.Phys., 1955, 26, 1213.

ASSOCIATION: Institut fiziki metallov AN SSSR  
(Institute of Physics of Metals AS USSR)

SUBMITTED: December 22, 1960

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S/126/61/012/004/011/021  
E111/E335


**AUTHORS:** Noskova, N.I. and Pavlov, V.A.

**TITLE:** X-ray-diffraction study of the fine structure of nickel iron after  $\gamma$ - $\alpha$  and  $\gamma$ - $\alpha$ - $\gamma$  transformations

**PERIODICAL:** Fizika metallov i metallovedeniye, v. 12, no. 4, 1961, 580 - 582

**TEXT:** The authors point out that polymorphic changes contribute to the production of the strengthened state in metals. The reverse polymorphic transformation (alpha-to-gamma iron) has been insufficiently studied because of experimental difficulties and little information is available on the structural changes produced inside grains. Although block disorientation has been studied (Ref. 4 - Edmondson, Acta met., 1954, no. 2, 235), there is as yet no detailed picture on the fine structure after reverse transformation. The authors study block size and type II distortions in the present work, as a result of forward and reverse transformation of nickel iron (0.04% C, 0.38% Si, 0.33% Mn, 0.51% Cr, 28.23% Ni and remainder Fe). The temperatures of the martensite transformation and the

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end of reverse transformation are -20 and 580 °C, respectively. Powder was used for the X-ray investigation, prepared by filing a rod, previously annealed at 1 100 °C, for 30 min. After sieving, the powder was vacuum-annealed (10<sup>-5</sup> mm Hg) at 1 100 °C for 30 min and vacuum-cooled at 100 °C/min to room temperature and quenched in liquid nitrogen. The quenched powder was divided into two halves, each of which was vacuum-annealed for 1 hour at 100, 200, 300, 400, 500, 580, 600, 700, 900 or 1 100 °C and re-sieved. Cylindrical specimens, 0.7 mm diameter, were prepared from the powder and subjected to X-ray diffraction in a 150-mm diameter camera with K $\alpha$ -iron radiation. The width of (111) and (222) diffraction lines of austenite and (110) and (220) of martensite were measured from photometry results, corrections being applied which were based on the method of Lysak (Ref. 7 - FMM, 1952, no. 3, p.28; 1955, no. 6, p. 40; 1954, no. 5, p. 45). The studied line width for alpha-iron was obtained from nickel-iron filing produced under nitrogen and then vacuum-annealed at 400 °C for 3 hours; for gamma iron - from filings vacuum-annealed at 1 100 °C for 30 min. The results

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showed that in the transformation temperature range block-growth is retarded. This is due to block-breakdown through local plastic deformation and polygonization under the action of elastic distortions produced during the transformation. The block size of newly-formed gamma phase is that of the alpha-phase existing under the prevailing conditions.

The work was carried out in collaboration with personnel of the Ural'skiy zavod tyazhelogo mashinstroyeniya (Ural' Heavy-machine Construction Works). V.D. Sadovskiy and K.A. Malyshov took part in discussions on the work and gave advice.

There are 2 tables and 10 references: 9 Soviet-bloc and 1 non-Soviet-bloc (mentioned in text).

ASSOCIATION: Institut fiziki metallov AN SSSR  
(Institute of Physics of Metals of the AS USSR)

SUBMITTED: February 27, 1961

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S/659/62/009/000/003/030  
1003/1203

**AUTHORS:** Pavlov, V. A., Gaydukov, M. G., Noskova, N. I., and Mel'nikova  
**TITLE:** The slip and diffusion ~~chaure~~ of plastic deformation during creep of nickel-copper alloys  
**SOURCE:** Akademiya nauk SSSR. Institut metallurgii. Issledovaniya po zharoprochnym splavam v. 9. 1962. Materialy Nauchnoy sessii po zharoprochym splavam (1961 g.), 23-30

**TEXT:** There are controversial ideas on the mechanism of plastic deformation under conditions of creep. This work shows that the processes of creep and of relaxation are the results of both slip and diffusion. The authors conclude that: 1) At low temperatures and under high stresses, the deformation is due chiefly to slip 2) At high temperatures and under low stresses the diffusion process prevails. 3) For an intermediate range of stresses and temperatures plastic deformation is the result of slip and relaxation is the result of diffusion. The relationship between the rate of creep on the one hand and the temperature and stress on the other, can in this case be expressed by the equation:  $E = C(\sigma^*/RT)\exp(-\varphi/RT)$ . In his reply, K. A. Osipov proclaimed that no proofs have been given in this work for the existence of a diffusion process during creep. In his opinion the fact that the activation energy is equal to that of self-diffusion as found by the authors is not sufficient proof that such a process takes place. There are 4 figures and 2 tables.

X

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PAVLOV, V.A.; GAYDUKOV, M.G.; NOSKOVA, N.I.; MEL'NIKOVA, V.V.

Plastic deformation by shear and diffusion during the creep of  
nickel-copper alloys. Issl. po zharopr. splav. 9:23-30 '62.  
(MIRA 16:6)  
(Creep of metals)

S/126/62/014/006/011/020  
E193/E383

AUTHORS: Noskova, N.I. and Pavlov, V.A.

TITLE: Stacking faults in nickel-base solid solutions

PERIODICAL: Fizika metallov i metallovedeniye, v. 14, no. 6,  
1962, 899 - 903

TEXT: Increasing the alloying-elements content in Ni-base solid solutions increases the value of stress at which a parabolic increase in the resistance of these metals to deformation begins. The object of the present investigation was to obtain additional experimental proof of the view (A. Seeger - Zs. Phys., 1959, 155, 247, 17) that this effect is associated with the energy of the stacking faults decreasing with increasing concentration of the solid solution. The experimental materials comprised pure nickel and nickel-base alloys with 20, 40 and 60% copper or cobalt. The probability of stacking faults  $\alpha$  was determined by X-ray diffraction analysis from the variation in the angular displacement between the (111) and (200) peaks

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